



**State of Louisiana
Department of Natural Resources
Coastal Engineering Division**

**2005/2006 Annual Inspection
Report**

for

**SABINE REFUGE PROTECTION
PROJECT (CS-18)**

State Project Number CS-18
Priority Project List 1

October 27, 2005
Cameron Parish

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I. Introduction

The proposed project is located approximately 20 mi (32 km) west-southwest of Hackberry, Louisiana (figure 1) on the east levee of the Burton-Sutton Canal (BSC) adjacent to the Sabine National Wildlife Refuge Impoundment 3, a 27,000 ac (10,927 ha) freshwater impoundment that provides habitat for freshwater game fish, alligator, furbearers, and migratory and resident waterfowl. (See Appendix A).

The Sabine Refuge Protection Project was authorized by Section 303(a) of Title III Public Law 101-646, the Coastal Wetlands Planning Protection and Restoration Act (CWPPRA) enacted on November 29, 1990 as amended and approved on the first Priority Project List. The Sabine Refuge Protection Project has a twenty –year (20 year) economic life, which began in February 1995.

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the Sabine Refuge Protection Project (CS-18) is to evaluate the constructed project features to identify any deficiencies and prepare a report detailing the condition of project features and recommended corrective actions needed. Should it be determined that corrective actions are needed, LDNR shall provide, in the report, a detailed cost estimate for engineering, design, supervision, inspection, and construction contingencies, and an assessment of the urgency of such repairs (O&M Plan, 2002). The annual inspection report also contains a summary of maintenance projects which were completed since completion of constructed project features and an estimated projected budget for the upcoming three (3) years for operation, maintenance and rehabilitation. The three (3) year projected operation and maintenance budget is shown in Appendix C. A summary of past operation and maintenance projects completed since completion of the Sabine Refuge Protection Project are outlined in Section IV.

A In 2003, the CWPPRA Task Force determined, due to the fact that LDNR was responsible for the operation and maintenance phase of the vast majority of CWPPRA projects, that LDNR would be the responsible party for all Post Storm/Hurricane Assessments. After Hurricanes Katrina and Rita, every project appeared to have been impacted by the storms; therefore, LDNR determined that all projects should be assessed for damages (Broussard, 2006). With concurrence from the federal sponsor, LDNR has decided to use the information obtained during this post hurricane assessment in this Annual Maintenance Inspection.

An inspection of the Sabine Refuge Protection Project (CS-18) was held on October 27, 2005 under sunny skies and cold temperatures. In attendance were Dewey Billodeau, Darrell Pontiff, Ralph Liberstat, and Justin Price from LDNR. Representatives from USFWS were Rueben LaBauve and Roy Walters. The inspection began on the south end of the foreshore dike on the Burton Sutton Canal.

The field inspection included a partial inspection of the project site due to the large amount of Hurricane Rita trash and debris in the Central Canal west of the Humpback Bridge. The debris

field encompassed an area approximately 6 miles wide and one quarter to one half mile wide. Staff gauge readings and existing temporary benchmarks were used to determine approximate elevations of water, rock weirs, earthen embankments, steel bulkhead structures and other project features. Photographs were not taken on this trip, however pictures are included from the April 21, 2005 inspection conducted earlier during the year (see Appendix B) and Field Inspection notes were completed in the field to record measurements and deficiencies (see Appendix D).

III. Project Description and History

The existing west levee along Impoundment 3, which was constructed in 1951, has deteriorated due to boat wake erosion and subsequent sloughing of levee material into the BSC. It is estimated that the levee is eroding at the rate of 0.27 ft/yr (0.08 m/yr) (LCWCRTF 1991; USFWS 1991). Continued erosion will result in multiple breaches of the levee, allowing higher salinity waters from the Calcasieu Ship Channel and Sabine Lake to enter the impoundment via the BSC. Since much of the freshwater marsh within the impoundment is highly organic and floating, saltwater intrusion and increased tidal exchange would likely convert as much as 13,000 ac (5,261 ha) of the impoundment to shallow open water (LCWCRTF 1991; USFWS 1991). The loss of floating and submersed vegetation would result in greater wind-induced wave erosion of the remaining marsh within the impoundment.

To prevent further bank erosion, 5.5 mi (8.9 km) of free-standing rock breakwater will be constructed on the canal side of the east levee of the BSC (figure 2). In addition, the levee will be restored where it is degraded using dredge material from the canal, and maintenance work will be undertaken at the three weir sites and at three alligator crossings. A similar project, Cameron Prairie Refuge Protection (ME-9), will also utilize a rock breakwater to prevent bank erosion along the Gulf Intracoastal Waterway (GIWW).

Project Objectives

1. Protect the existing freshwater vegetation within Impoundment 3 of Sabine NWR adjacent to the Burton-Sutton Canal.
2. Prevent the encroachment of the Burton-Sutton Canal into the impoundment.

Specific Goals

The following measurable goals were established to evaluate project effectiveness:

1. Restore and protect the west levee of Impoundment 3 using dredge material and a free-standing rock breakwater.
2. Protect existing freshwater vegetation in Impoundment 3 from saltwater intrusion via the Burton-Sutton Canal.

IV. Summary of Past Operation and Maintenance Projects

General Maintenance: There has been no required maintenance on this project.

2005 Structure Operations: There are no active operations associated with this project.

V. Inspection Results

Foreshore Rock Dike (Burton Sutton & Starks Central Canals)

The rock breakwater along the Burton Sutton Canal was the only dike inspected due to Hurricane Rita debris field. The storm surge was estimated to be +7.0 NAVD88. There was some organic material deposited on the rocks. The dike is in excellent post construction condition. No need for any maintenance in the foreseeable future. (Photos: Appendix B, Photos 1 - 2)

Reinforcement of wingwalls at 3 water control structures

Only weir no. 1 at site no. 3 was inspected due to Hurricane Rita trash and debris field. No maintenance required at this time (Photos: Appendix B, Photos 3-4).

Alligator crossings

The alligator crossings were not inspected during this annual inspection due to the Hurricane Rita debris field.




VI. Conclusions and Recommendations

Overall, the Sabine Refuge Protection Project is in excellent condition with structures functioning as designed. Input will be sought from USFWS personnel to determine whether alligator crossings are of any benefit. Should it be determined that alligators no longer use these areas once they are reinforced, they can be cut from future projects.

Appendix A
Project Features Map



Sabine National Wildlife Refuge Erosion Protection (CS-18)

-  Weir
-  Shoreline Protection
-  Project Boundary



Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station

Background Imagery:
1998 Digital Orthophoto Quarter Quadrangle

Map Date: May 9, 2002
Map ID: 2002-11-713
Data accurate as of: May 9, 2002

Appendix B

Photographs



Photo 1—southern tie-in on Burton Sutton Canal (April 21, 2005)



Photo 2—northern tie-in (April 21, 2005)



Photo 3—wingwall rock on Beach Canal structure (April 21, 2005)



Photo 4—wingwall rock on Starks Central Canal structure (April 21, 2005)

Appendix C

Three Year Budget Projection

SNWR EROSION PROTECTION/ CS-18 / PPL 1
Three-Year Operations & Maintenance Budgets 07/01/2005 - 06/30/08

<u>Project Manager</u>	<u>O & M Manager</u>	<u>Federal Sponsor</u>	<u>Prepared By</u>
Pat Landry	Dewey Billodeau	USFWS	Dewey Billodeau

	2005/2006	2006/2007	2007/2008
Maintenance Inspection	\$ 4,955.00	\$ 5,250.00	\$ 5,407.00
Structure Operation			
Administration		\$ -	\$ -
Maintenance/Rehabilitation			

05/06 Description:

E&D	
Construction	
Construction Oversight	
Sub Total - Maint. And Rehab.	\$ -

06/07 Description

E&D	\$ -
Construction	\$ -
Construction Oversight	\$ -
Sub Total - Maint. And Rehab.	\$ -

07/08 Description:

E&D	\$ -
Construction	\$ -
Construction Oversight	\$ -
Sub Total - Maint. And Rehab.	\$ -

	2005/2006	2006/2007	2007/2008
<u>Total O&M Budgets</u>	\$ 4,955.00	\$ 5,250.00	\$ 5,407.00

<u>O & M Budget (3 yr Total)</u>	\$ 15,612.00
<u>Existing O & M Budget</u>	\$ 281,322.00
<u>Remaining O & M Budget (Projected)</u>	\$ 265,710.00

Appendix D

Field Inspection Form

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: CS-18 Sabine National Wildlife Refuge

Date of Inspection: October 27, 2005 Time: 11:00 a.m.

Structure No. Impoundment Area 3

Inspector(s): Dewey Billodeau, Darrell Pontiff, Justin Price,
Ralph Liberstat, Cindy Steyer, Wayne Melancon

Structure Description: Rock Dike

Water Level Inside: N/A Outside: N/A

Type of Inspection: Annual

Weather Conditions: Sunny and Cold

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps					
Steel Grating					
Stop Logs					
Hardware					
Timber Piles					
Timber Wales					
Galv. Pile Caps					
Cables					
Signage / Supports					
Rip Rap					
Rock Dike	Good				
W.W. Reinf.	Good				
Earthen Embankment					

What are the conditions of the existing levees?
 Are there any noticeable breaches?
 Settlement of rock plugs and rock weirs?
 Position of stoplogs at the time of the inspection?
 Are there any signs of vandalism?

Appendix E

Locations to be Monitored